

approaches it in size except *C. woodgatei* C. & N., and this new species bears no resemblance to that species.

Described from a single female, labeled Fall Mountain Look-out trail, Grant County, Oregon, 5200-6000 ft., July 14, 1936, H. A. Scullen Coll. Type in author's collection.

AN OCCURRENCE OF PROTHETELY IN THE WIREWORM *MELANOTUS LONGULUS* LEC.

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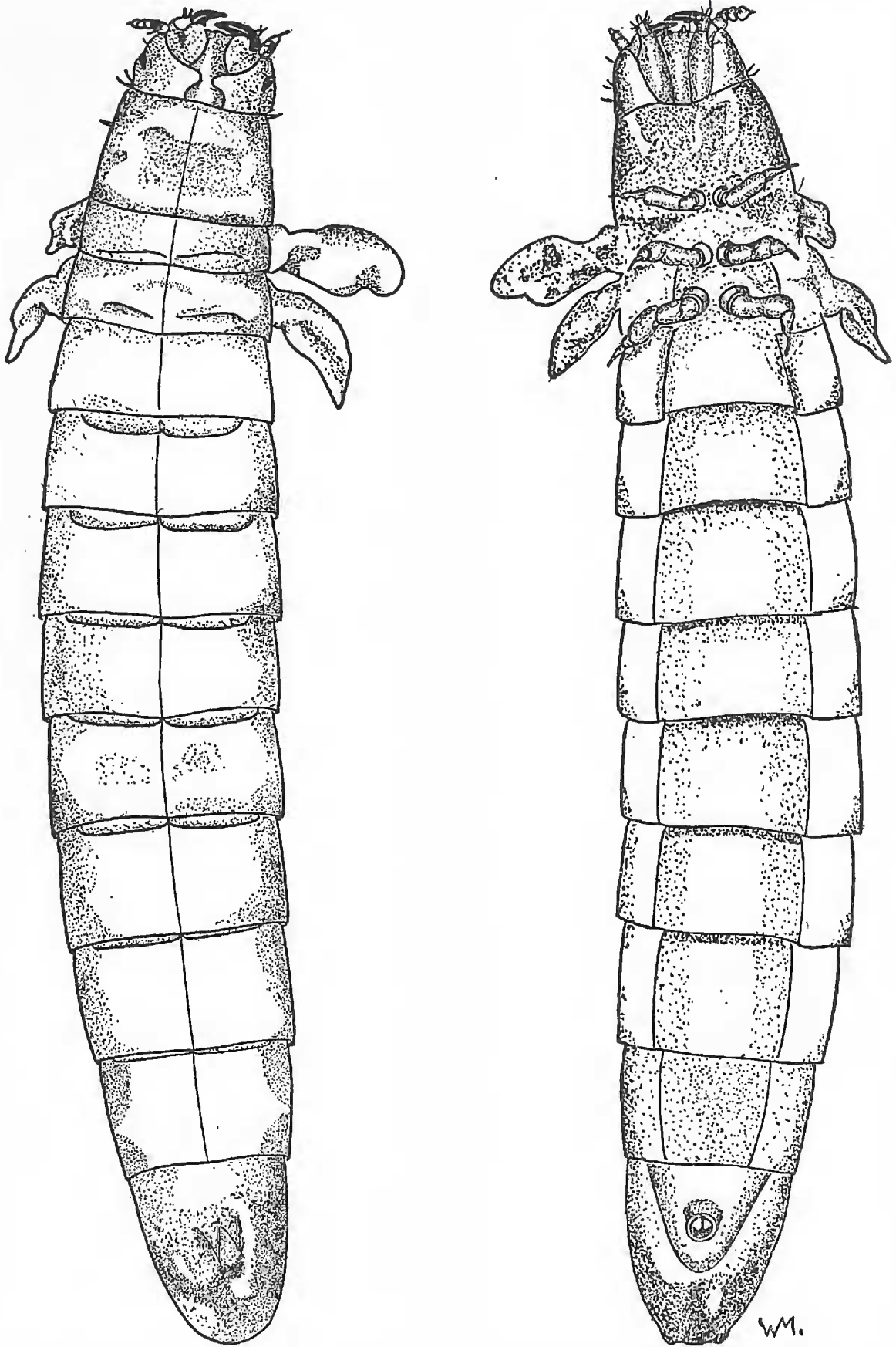
Only two instances of prothetely in the Elateridæ have been recorded. Hyslop (1)² in 1916 described a specimen of *Melanotus communis* Gyll. which had both larval and pupal characteristics and Thomas (2) in 1933 described a similar abnormality which he had discovered in a larva of *Monocrepidius lividus* De G.

The writer also observed this rarity recently while examining a group of *Melanotus longulus* Lec. larvæ which had been reared in salve cans from the egg stage. The female which produced the eggs was collected on alfalfa near Temple, Calif. This specimen (Figs. 1 and 2), one of a group of 34, which hatched between May 13 and June 13, 1932, was found in the prothetelous state on August 27, 1935, after an elapsed period of 1,202 days. As the larva was extremely active, it was decided to kill and preserve the specimen before any possibility of breakage of the wing pads in case it attempted to re-enter the soil. A brief description follows:

The mouth-parts are normal and larviform. The antennæ are larviform but about twice normal size. The eyes are typically pupiform, being located in a membranous area directly behind the antennal base. As observed by Thomas (2) in *M. lividus*, the paired wing pads situated on the mesothorax and metathorax appear to rise directly from the body wall. They are not well developed, are distorted, and lack the normal striation found in typical pupæ. Apparently the left mesothoracic wing pad has broken off, as only a stub-like pad remains. The right mesothoracic wing pad is considerably broader and slightly longer than the metathoracic wing pads. The prothorax, except for being slightly enlarged, is normally larviform. The coxæ and tro-

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²Figures in parentheses refer to "Literature Cited."



Larvæ of *Melanotus longulus* Lec., showing wing pads.
Fig. 1—Dorsal view, Fig. 2—Ventral view, x5.

chanters of all legs are typically larviform, but the femora, tibiæ, and tarsi are pupiform. Spines on all legs are small and few in number. The abdomen, except for the absence of lateral bristles, is typically larviform. Length 19 mm. Width 3 mm.

Of this group of larvæ which hatched during May and June 1932, 7 pupated normally in 1933, 12 in 1934, and 8 in 1935, representing a 2, 3, and 4 year life cycle, respectively. Five individuals died and 2 continued as larvæ, indicating a possible 5-year cycle for these individuals. In the group of 8 larvæ which completed development in 1935, the first prepupa was obtained on July 3, and the first pupa on August 12. The last pupation was observed September 26, so the abnormality occurred within the normal pupation period of this species. Temperatures during the larval period averaged 68.6° with a seasonal range of from 53° to 87° F.

All specimens in the group were confined individually in salve cans in the basement and were fed 10 kernels of moist wheat at monthly intervals from the time of hatching. The moisture content of the soil at each feeding was kept as near optimum as possible, between 12 and 14 percent.

Hyslop (1) believed that an abnormal humidity at or shortly before the time of pupation was the causative stimulus of this phenomenon in *M. communis*. The fact that all larvæ in this series were subjected to the same conditions of soil moisture, temperature, and food would indicate that other factors than these are responsible for the occurrence of prothetely in *M. longulus*.

LITERATURE CITED

- (1) Hyslop, J. A. 1916. Prothetely in the elaterid genus *Melanotus*. *Psyche*, XXIII, pp. 3-6, illust.
- (2) Thomas, C. A. 1933. Prothetely in an elaterid larva (Coleop.). *Ent. News*, XLIV, pp. 91-96, illust.

SUPPLEMENTAL NOTE TO THE PAPER FOLLOWING

Since the following paper was submitted the writer has added to his collection eight specimens of *Haplothrips californicus* Mason, collected by G. L. Smith on *Atriplex* at Arvin, California, Aug. 18, 1936. Among these were two males. There are no differences between the sexes except the usual differences in the genitalia and the smaller size of the male.—S. F. Bailey.